

Abstract Submitted  
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**Frequency Modulated Excitation of Rydberg Floquet States in Li<sup>1</sup>** ERIC MAGNUSON, TOM GALLAGHER, Univ of Virginia — The Floquet structure of atomic states perturbed by oscillating electric fields is well understood from high resolution spectroscopy. The effect of the oscillating fields is to frequency modulate the atomic states. Here we use a frequency modulated (FM) diode laser to excite the Floquet structure of Li Rydberg states perturbed by synchronous microwave (MW) fields. The probability of excitation is dependent on the phase shift between the laser and state modulation. We observe the phase dependence of the excitation probability, and compare our results to the Floquet description to produce an absolute measure of the phase shift between the frequency modulation of the laser and the MW field at the atoms. This can be used as a reference to determine the absolute phase shift of previous phase dependent ionization experiments, which tests the predictions of the classical electron motion model.

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